AIR SAMPLING AND MONITORING PROTOCOL

FOR:

130 CEDAR STREET
NEW YORK, NY 10006

CLIENT:

MASTERWORKS DEVELOPMENT CORP.
56 WEST 45th STREET
NEW YORK, NY 10036

JLC PROJECT No.: 04-3271

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JLC

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1.0 Introduction

JLC Environmental Consultants, Inc. (JLC) has been retained by Masterworks Development Corp. to prepare this proposed air-sampling plan for abatement/ deconstruction work at 130 Cedar Street, New York, New York (hereby known as "the subject property"). This plan encompasses several types of monitoring that correspond with the complex nature of the deconstruction process. The demolition includes asbestos and lead based paint removal, roof and exterior façade renovation and interior construction. Source documents used for reference herein are listed in the footnotes and the attached Appendix A.

The following is a brief summary of the basic types of sampling work to be completed at the subject property. These definitions were outlined in the Proposed Ambient Air Monitoring Program for the 130 Liberty Street Deconstruction Project[1]:

Level 1: The personnel performing deconstruction work will be responsible to collect personal air samples representative of various work activities. The purpose of this sampling is to determine airborne levels of contaminants generated at the source point.

Level 2: JLC will collect ambient air samples and wipe samples inside the building during deconstruction and abatement of known hazards. Sampling will also be conducted outside the isolation barriers of the work area and at exits points from contaminated spaces (i.e. the personnel and waste load out decontamination units).

Level 3: JLC will monitor the exterior ambient air of the site at street level.

Level 4: JLC will monitor at various points outside of the project boundary. Concurrent comprehensive meteorological monitoring to assist in data analysis will support this sampling.

2.0 Background

This proposed program has been developed to monitor for contaminants of potential concern (CPOC) as referenced by the Initial Building Characterization Study Report[2] prepared for a neighboring building located at 130 Liberty Street. Meetings and discussions with personnel from the United States Environmental Protection Agency (USEPA) and the New York City Department of Environmental Protection (NYCDEP) were also helpful in preparing this document as was the

[1]Proposed Ambient Air Monitoring Program for the 130 Liberty Street Deconstruction Project, prepared by Weston Solutions, Inc., revision 12/10/2004

[2]Intial Building Characterization Study Report, prepared by The Louis Berger Group, Inc., 9/14/2004

Amount of research information available at the Lower Manhattan Development Corporation (LMCD) website.

The objects of this air sampling and monitoring protocol are to:

- Record meteorological conditions which may affect analytical results;
- Conduct real time monitoring to gauge migration, if any, of contaminants from the site;
- Conduct air and wipe sampling for target compounds

3.0 Methodology

A) Monitoring meteorological variables and their significance is important in modeling air quality. A Rain Wise Weather log meteorological station will log the following variables:

a. Wind Speed, Direction and Standard Deviation of Wind Speed Direction
b. Barometric Pressure
c. Rainfall

B) Real Time Monitoring and/or Periodic Integrated Sampling methods will be utilized to conduct sampling for:

a) Respirable Dust (PM^{10})
b) Total Suspended Particulates (TSPs)
c) Metals (as TSPs)
d) Mercury
e) Asbestos ((utilizing Phase Contrast Microscopy (PCM) and Transmission Electron Microscopy (TEM))
f) Silica
g) Polycyclic Aromatic Hydrocarbons (PAHs)
h) Dioxins (and Furans)
i) Polychlorinated Biphenyls (PCBs)

C) Sampling Sites

A total of three (3) exterior, perimeter locations of the subject property will be selected to perform on-going monitoring during exterior deconstruction activities (i.e. façade removal). Possible sampling locations include:

1) Southeast corner of the subject property at ground level.
2) Southwest corner of the subject property at ground level.

3) Northwest corner of the subject property at ground level

A total of one (1) exterior, perimeter location that is adjacent to the subject property will be selected on the downwind side of established prevailing winds at an elevated location. Masterworks Development will arrange access to this sampling location.

D) Sampling Phases

Sampling phases shall be broken down as follows: exterior background, interior background, continuous/during and clearance.

a) Exterior Background Samples: ambient/background sampling shall be conducted at exterior locations for one (1) sampling day consisting of one (1) eight (8) hour sampling period. This sampling will be conducted prior to the commencement of deconstruction activities.

Background samples will be collected at all four exterior sampling locations for the following types of compounds:

- Particulates as Total Suspended Particulates (TSPs)
- Metals as Total Suspended Particulates (TSPs)
- Asbestos – PCM analysis (5% of total by TEM analysis)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Dioxins and Furans
- PCBs
- Mercury
- Silica

b) Interior Background Samples: interior ambient/background samples shall be conducted at various locations prior to deconstruction activities within the subject property.

Interior background sampling for asbestos shall be conducted as per federal, state and local regulations and as outlined in the JLC Asbestos Abatement Technical Specification dated July 15, 2004, p. 59. Asbestos air samples will be collected for analysis by PCM with 5% of the total number of samples reanalyzed utilizing TEM methodology.

Interior background samples will also be collected for the following analytes: RCRA wipe samples for the following metals: aluminum (Al), arsenic, cadmium (Cd), copper (Cu), iron (Fe) manganese (Mn), lead (Pb) and Zinc (Zn); Mercury (Hg), Silica (Si), dioxins and furans; and PAHs. The wipe methodology is outlined in the New York City Department of Environmental Protection Bureau of Environmental Compliance, WTC Unoccupied Building Cleaning Program Scope of Work, Project #WTC LBA (found in the contract document known as Supply

and Service Contract, Emergency Air Monitoring at the World Trade Center Site, 114 Liberty Street).

c) Continuous/During Samples:

Exterior samples will be collected for Particulates (as TSP's), Metals (as TSP's), PAHs, D/Fs, PCBs, Mercury (Hg), Silica (Si) and Asbestos. Real time particulate monitoring will be conducted at the four exterior sampling locations for PM^{10} (particulate matter of less then 10 microns in size).

During work activities, ambient asbestos air sampling will be conducted for one (1) eight (8) hour period each day. These samples will be analyzed by PCM with 5% of the total reanalyzed by TEM analysis.

d) Clearance Samples:

Interior samples for asbestos will be collected as per federal, state and local regulations by PCM with 5% of the total reanalyzed by TEM analysis. Silica samples will be collected and analyzed from each work location.

Interior wipe samples for RCRA metals, D/Fs, PCBs, Mercury (Hg), Silica (Si) and PHA's will be collected (see background/ambient sampling section D, parts a and b).

E) Sampling and Monitoring

1. Continuous Monitoring: The monitors selected to continuously measure PM^{10} during the exterior façade deconstruction work shall be beta-attenuation monitors or an equivalent, acceptable method. Real time monitors are currently not an EPA reference method, one reference method PM^{10} sampler will be co-located along side the real-time PM^{10} as a quality assurance (QA) check. This QA sampler will be rotated daily through all real-time PM^{10} monitoring locations for the duration of the sampling period.

2) Integrated Samplers: The monitors selected to measure TSP's, Metals and Silica shall be Federal Reference Method (FRM) samplers or an equivalent methodology. These are the samplers that are routinely used by USEPA and state agencies to measure compliance with ambient air quality standards. The TSP's are collected on an 8-inch x 10-inch micro quartz filter. The sampler flow rate is generally set to run at 40 actual cubic feet per minute (acfm) and held at a constant flow rate by a volumetric flow orifice for the sample period. TSP filters will be analyzed using inductively coupled plasto spectroscopy (ICP) for eight RCRA metals.

3) Asbestos Sampling Units: Asbestos samples will be collected according to NIOSH 7400 using Phase Contrast Light Microscopy. Filter sampling media is a

.45-micron mixed cellulose ester (MCE) membrane 25mm in diameter with a conductive cowl on a cassette. Sample volumes will various due to various site-specific conditions.

4) Silica Sampling: Silica samples will be collected according to NIOSH 7500 Method using XRD analysis.

5) Fibrous Glass Sampling: Fibrous Glass samples will be collected according to NIOSH 7400 Method using counting method "B".

6) Dioxin/Furan Wipe Sampling: D/F samples will be collected according to ASTM method 6661-01 and analyzed by EPA Method SW-846-8290.

7) Poly Cyclic Aromatic Hydrocarbon Sampling: PAH samples will be collected using ASTM method D6661-01 and analyzed using EPA method SW-846-8270C.

8) RCRA Metals Sampling: RCRA metals samples will be collected using wipe samples pre-moistened with de-ionized water.

9) Mercury will be sampled Utilizing EPA modified method7471A.

10) Poly chlorinated bi Phenols will be sampled utilizing EPA modified method 8082.

4.0 Quality Assurance and Quality Control

Quality Assurance (QA) includes the systematic actions necessary to provide adequate confidence that a measurement will satisfy a given requirement for accuracy. Quality Control (QC) is the operation techniques that are used to fulfill requirements for quality. The QC procedures for the air sampling and monitoring sections of this protocol include planned equipment calibrations, preventative maintenance of equipment, co-located sampling to evaluate precision and analysis of QC samples consisting of field blanks and lab blanks.

5.0 Alarm and Action Levels

The goal of the air sampling and monitoring protocol is to ensure the deconstruction operations at the subject property do not have a negative impact on the airborne environment of the surrounding community. Any action and alarm levels that may be established and utilized for the COPC would be solely for that purpose rather than providing compliance with any known health standard.

Appendix A: References

Proposed Ambient Air Monitoring Program for the 130 Liberty Street Deconstruction Project, prepared by Weston Solutions, Inc., revision 12/10/2004

Initial Building Characterization Study Report, prepared by The Louis Berger Group, Inc., 9/14/2004

New York City Department of Environmental Protection Bureau of Environmental Compliance, WTC Unoccupied Building Cleaning Program Scope of Work, Project #WTC LBA (Supply and Service Contract, Emergency Air Monitoring at the World Trade Center Site, 114 Liberty Street)